

What is Claimed:

- 09743242-081701
1. A method for storing a population of fetal porcine neural cells suitable for transplantation comprising:
 - 5 a) contacting a population of porcine neural cells with a hibernation medium to thereby produce a cell suspension; and
 - b) maintaining the cell suspension at about 4°C to thereby store a population of neural cells suitable for transplantation.
 - 10 2. A method for cryopreserving a population of fetal porcine neural cells suitable for transplantation comprising:
 - a) contacting a population of porcine neural cells with a cryopreservation solution to thereby obtain a population of cells for cryopreservation; and
 - 15 b) decreasing the temperature of the population of neural cells for cryopreservation to about -196°C to thereby cryopreserve a population of neural cells suitable for transplantation.
 3. A method of obtaining a population of fetal porcine neural cells suitable for transplantation comprising:
 - 20 a) contacting a population of porcine neural cells with a cryopreservation solution to thereby obtain a population of cells for cryopreservation;
 - b) decreasing the temperature of the population of neural cells for cryopreservation to about -196°C to obtain cryopreserved neural cells;
 - c) increasing the temperature of the cryopreserved neural cells to thereby
 - 25 obtain a population of neural cells suitable for transplantation; and
 - d) contacting the neural cells suitable for transplantation with a hibernation medium and maintaining the cells at about 4°C prior to transplantation.
 4. The method of claim 3, wherein the porcine neural cells are ventral
30 mesencephalic cells.

5. The method of claim 3, wherein the ventral mesencephalic cells are porcine neural cells obtained between about days 25 and 33 of gestation.
6. The method of claim 3, wherein the porcine neural cells are spinal cord cells.
7. The method of claim 3, wherein the porcine neural cells are striatal cells.
8. The method of claim 3, wherein the striatal cells are obtained from a lateral ganglionic eminence of the developing porcine striatum.
9. The method of claim 3, wherein the porcine neural cells are cortical cells.
10. A population of porcine neural cells for transplantation prepared according to the method of claim 3.
11. A method for treating a neurological disorder of dysfunction comprising transplanting the population of porcine neural cells according to claim 10 into a subject.
12. A method for storing a population of human or porcine neural cells suitable for transplantation comprising:
- a) contacting a population of human or porcine neural cells with a hibernation medium free of added Ca^{++} and added protein to thereby produce a cell suspension; and
 - b) maintaining the cell suspension at about 4°C to thereby store a population of neural cells suitable for transplantation.

13. A method for storing a population of human or porcine neural cells suitable for transplantation comprising:

- 5 a) contacting a population of human or porcine neural cells with a hibernation medium free of added buffer to thereby produce a cell suspension; and
b) maintaining the cell suspension at about 4°C to thereby store a population of neural cells suitable for transplantation.

14. A method for storing a population of human or porcine neural cells suitable for transplantation comprising:

- 10 a) contacting a population of human or porcine neural cells with a hibernation medium which medium is free of added protein and free of a buffer to thereby produce a cell suspension; and
b) maintaining the cell suspension at about 4°C to thereby store a population of neural cells suitable for transplantation.

15 15. A method for storing a population of human or porcine neural cells suitable for transplantation comprising:

- 20 a) contacting a population of human or porcine neural cells with a hibernation medium which medium consists of glucose and sodium chloride to thereby produce a cell suspension; and
b) maintaining the cell suspension at about 4°C to thereby store a population of neural cells suitable for transplantation.

25 16. A method for cryopreserving a population of human or porcine neural cells suitable for transplantation comprising:

- 30 a) contacting a population of human or porcine neural cells with a cryopreservation solution free of added protein and comprising a cryopreservative to thereby obtain a population of cells for cryopreservation; and
b) decreasing the temperature of the population of neural cells for cryopreservation to about -196°C to thereby cryopreserve a population of neural cells suitable for transplantation.

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17. A method for cryopreserving a population of human or porcine neural cells suitable for transplantation comprising:

- 5 a) contacting a population of human or porcine neural cells with a cryopreservation solution which is free of a buffer and which comprises a cryopreservative to thereby obtain a population of cells for cryopreservation; and
- b) decreasing the temperature of the population of neural cells to about -196°C to thereby cryopreserve a population of neural cells suitable for transplantation.

18. A method for cryopreserving a population of human or porcine neural cells suitable for transplantation comprising:

- 10 a) contacting a population of human or porcine neural cells with a cryopreservation solution which is free of added protein and a buffer and which comprises a cryopreservative to thereby obtain a population of cells for cryopreservation; and
- 15 b) decreasing the temperature of the population of neural cells for cryopreservation to about -196°C to thereby cryopreserve a population of neural cells suitable for transplantation.

19. A method for cryopreserving a population of human or porcine neural cells suitable for transplantation comprising:

- 20 a) contacting a population of human or porcine neural cells with a cryopreservation solution consisting of glucose, sodium chloride, and a cryopreservative to thereby obtain a population of cells for cryopreservation; and
- 25 b) decreasing the temperature of the population of neural cells for cryopreservation to about -196°C to thereby cryopreserve a population of neural cells suitable for transplantation.

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20. A method of obtaining a population of human or porcine neural cells suitable for transplantation comprising:

- a) contacting a population of human or porcine neural cells with a cryopreservation solution which is free of added protein which comprises a cryopreservative to thereby obtain a population of cells for cryopreservation;
- b) decreasing the temperature of the population of neural cells for cryopreservation to about -196°C to obtain cryopreserved neural cells; and
- c) increasing the temperature of the cryopreserved neural cells to thereby obtain a population of neural cells suitable for transplantation.

21. A method of obtaining a population of human or porcine neural cells suitable for transplantation comprising:

- a) contacting a population of human or porcine neural cells with a cryopreservation solution free of a buffer and comprising a cryopreservative to thereby obtain a population of cells for cryopreservation;
- b) decreasing the temperature of the population of neural cells for cryopreservation to about -196°C to obtain cryopreserved neural cells; and
- c) increasing the temperature of the cryopreserved neural cells to thereby obtain a population of neural cells suitable for transplantation.

22. A method of obtaining a population of human or porcine neural cells suitable for transplantation comprising:

- a) contacting a population of human or porcine neural cells with a cryopreservation solution free of added protein and a buffer and which comprises a cryopreservative to thereby produce a population of neural cells suitable for cryopreservation;
- b) decreasing the temperature of the population of neural cells for cryopreservation to about -196°C to obtain cryopreserved neural cells; and
- c) increasing the temperature of the cryopreserved neural cells to thereby obtain a population of neural cells suitable for transplantation.

23. A method of obtaining a population of human or porcine neural cells suitable for transplantation comprising:

- 5 a) contacting a population of human or porcine neural cells with a cryopreservation solution consisting of: glucose, sodium chloride, and a cryopreservative to thereby obtain a population of cells for cryopreservation;
- b) decreasing the temperature of the population of neural cells for cryopreservation to about -196°C to obtain cryopreserved neural cells; and
- c) increasing the temperature of the cryopreserved neural cells to thereby obtain a population of neural cells suitable for transplantation.

10 24. The method of claim 20, 21, 22, or 23, wherein the neural cells are fetal human cells.

15 25. The method of claim 24, wherein the neural cells are human neural stem or neural progenitor cells that have been induced to differentiate *in vitro*.

26. The method of claim 20, 21, 22, or 23 wherein the neural cells are porcine cells.

20 27. The method of claim 26, wherein the porcine neural cells are ventral mesencephalic cells.

28. The method of claim 26, wherein the porcine neural cells are spinal cord cells.

25 29. The method of claim 16, wherein the porcine neural cells are striatal cells.

30. The method of claim 26, wherein the porcine neural cells are cortical cells.

30 31. A population of human or porcine neural cells for transplantation prepared according to the method of claim 20, 21, 22, or 23.

32. A method for treating a neurological disorder or dysfunction comprising transplanting the population of human or porcine neural cells according to claim 31 into a subject.

5 33. A method for storing a population of human or porcine neural cells suitable for transplantation comprising:

- a) contacting a population of human or porcine neural cells with a hibernation medium to thereby produce a cell suspension;
- b) maintaining the cell suspension for at least about 24 hours at about
10 4°C in hibernation medium to thereby produce an adapted cell suspension; and
- c) contacting the adapted cell suspension with a cryopreservation solution to thereby store a population of neural cells suitable for transplantation.

15 34. A method for cryopreserving a population of human or porcine neural cells suitable for transplantation comprising:

- a) contacting a population of human or porcine neural cells with a hibernation medium to thereby produce a cell suspension;
- b) maintaining the cell suspension for at least about 24 hours at about
4°C in hibernation medium to thereby produce an adapted cell suspension;
- 20 c) contacting the adapted cell suspension with a cryopreservation solution to thereby obtain a population of cells for cryopreservation; and
- d) decreasing the temperature of the population of neural cells suitable for cryopreservation to about -196°C to thereby cryopreserve a population of neural
25 cells suitable for transplantation.

35. A method of obtaining a population of human or porcine neural cells for transplantation comprising:

- a) contacting a population of human or porcine neural cells with a hibernation medium to thereby produce a cell suspension;
- 5 b) maintaining the cell suspension for at least about 24 hours at about 4°C in hibernation medium to thereby produce an adapted cell suspension;
- c) contacting the adapted cell suspension with a cryopreservation solution to thereby obtain a population of cells for cryopreservation;
- d) decreasing the temperature of the population of neural cells for
10 cryopreservation to about -196°C; and
- e) increasing the temperature of the neural cells to thereby obtain population of neural cells suitable for transplantation.

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